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Why Do People Give?

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The vast majority of Americans make charitable contributions. In 2000, 90 percent of U.S. households donated on average $1,623 to nonprofit organizations.[1] Why do so many people choose to give their hard-earned income away? What motivates them to behave in this altruistic or seemingly altruistic manner? The objective of this chapter is to present a short summary of what economists have learned about the motivations for individual charitable giving.[2] This is a question of substantial importance, as individual contributions account for more than 80 percent of total dollars given.[3] If we do not understand why people give, then how can we encourage them to become donors or to increase their contributions, and how can we predict the effect changes in the economic environment will have on giving?

One way to think about charitable giving is that it is just like the purchase of any other commodity. That is, we expect contributions to depend on how much we earn and how costly it is to give. In the first part of the chapter I examine how the individual's income and the price of giving affect her contribution. Determining how individuals respond to these factors is crucial not only for predicting how total donations respond to changes in tax policy and how fundraisers can take advantage of these changes, but also for determining how the government best can design subsidies such as the tax deductibility of donations to nonprofits.[4]

While the similarity with ordinary commodities is clear when we examine responses to changes in income and prices, it is less so when we want to determine what motivates us to make such a purchase or contribution. What is it that we get in return from these transactions? What tradeoffs do we face when we give our money away? In the second part of the chapter I discuss the potential benefits of giving. There are many types of benefits and they vary with both the individual and the organization. Economists typically classify them into two groups. One group is public in nature because both the donor and other individuals benefit. For example, while a donor may care about the provision of the nonprofit's output, this same output may simultaneously benefit other individuals. The second group is private in nature. Giving may make you feel better about yourself, it may make you feel like you have done your share and perhaps paid back to the community, or it may give you prestige or an acknowledgment that you would not otherwise get. Since no one but the donor can enjoy these aspects of giving, we characterize them as private benefits.

Why does it matter whether the benefit from giving accrues solely to the donor or affects the well-being of other donors as well? The reason is, in part, that the characteristics of the benefit help us determine whether voluntary contributions are likely to result in the "right," or optimal, level of contributions. If everyone views the benefit from giving as entirely private then each individual will contribute an amount that reflects her valuation of the nonprofit, and as a result the voluntary provision level will be optimal. If on the other hand the benefit is public, then the contribution by another donor provides the exact same benefit as one made by yourself, and since it is costly for you to contribute you have an incentive to free-ride off the contribution of others. In the presence of other donors an individual who is motivated by the public benefit will choose to contribute less than she would absent these donors. When the benefit is public we predict that too little of the public good will be provided.

To determine whether benefits from giving are primarily public or private, economists have examined the following distinct predictions of these two alternatives: an increase in the contribution of others is expected to decrease an individual's contribution when the benefit of giving is public, and it is expected to cause no change in giving when the benefit is private. Most empirical studies of survey or donation data find that on average the benefit appears to be private in nature. This suggests that the last dollar that we give to charity is not motivated by the nonprofit's output. This is an extreme result, and one may question whether the nonprofit's output truly can be irrelevant for our decision to give an additional dollar to charity. In the final section of the chapter I investi-

gate the possibility that perhaps the economic interpretation of the empirical results is misled by the assumptions we impose on the model of giving. I relax the assumptions and examine if this alters the crucial prediction that donors who are concerned about the nonprofit's output decrease their personal donations when the donations of others increase. In particular I consider environments where donors take account of the effect that their donation will have on the contributions of others, as well as those where donors not only maximize their well-being but are also restricted by social norms or rules. I show that in some circumstances these altered assumptions change the predictions of the model.

THE EFFECTS OF PRICE AND INCOME ON GIVING

It is natural to expect charitable giving to increase with income and decrease with the price of giving. But what exactly is meant by the price of giving? Typically the price of an object refers to what we have to pay to obtain a particular good. For charitable giving the price of giving refers to what it costs us to give the organization an additional dollar. Since charitable contributions are deductible for those who itemize, the price of giving depends on the individual's marginal tax rate.[5] Suppose, for example, that an itemizing taxpayer faces a marginal tax rate of 28 percent. Then, by giving $1, the donor will pay $0.28 less in taxes for a net price of $0.72. Thus someone with a marginal tax rate of 15 percent is faced with a price of $0.85 per dollar given. Further reductions in tax liability can be attained if the donor decides to contribute an appreciated asset. In this case the donor can deduct the market value of the asset and does not have to pay taxes on the accrued capital gain.[6]

Data from a survey of 200 big donors are suggestive of the impact that taxes have on giving (Prince and File 1994). This study revealed that "awareness of tax advantages" was ranked the third most important motivator for making a charitable donation.[7] Does such awareness cause charitable giving to respond to changes in the tax rate? Often aggregate data suggest little if any response to price changes. For example, despite the substantial changes in the marginal tax rates during the 1980s the share of income donated remained fairly constant. However, one must be cautious when interpreting such aggregate statistics. We first have to account for other simultaneous changes in the economy and for the fact that not all contributors experienced the same changes in the marginal tax rate. A possible way of incorporating both of these effects is to determine whether those who were presented with a higher price of giving decreased their contributions relative to those who did not face a higher price.[8] Clotfelter (1990) and Auten, Cilke, and Randolph (1992) examine this question and find that in the aftermath of the 1986 Tax Reform Act, giving for those faced with a lower marginal tax rate decreased relative to those who did not face a different marginal tax rate. Thus a more careful analysis suggests that people do respond to the price of giving.

For the past three decades economists have tried to determine exactly how sensitive giving is to price and income. The measures of interest have generally been the income and price elasticities of demand, which is the percentage change in the amount given associated with a 1 percent change in income and price, respectively. Because the income elasticity measures the responsiveness of gifts to changes in income, we expect that the measure is positive.[9] If, for example, the income elasticity of demand is 1.50 then a 1 percent increase in income increases giving by 1.5 percent. The price elasticity of demand measures responsiveness to price and is therefore expected to be less than zero. That is, an increase in price is likely to decrease donations.

To examine if it is a good idea for charitable contributions to be tax deductible, researchers have been particularly interested in determining whether the price elasticity, in absolute value, is larger or smaller than one. It has been argued that for deductions to be effective, the deductibility provision must increase charitable contributions by an amount that exceeds the government's cost of the provision. The reason is that the government instead of allowing contributions to be tax deductible could transfer the funds spent on this provision directly to the charity. When donations are tax deductible, each dollar received by the charity is in part financed by the donor and in part by the government's lost tax revenue.

To see that the threshold for the "treasury efficient" price elasticity equals one, in absolute value, consider the unit elastic case.[10] If, in this case, the marginal tax rate increases to reduce the price of giving by 1 percent, then the individual's contribution also increases by 1 percent. While the individual's total cost of giving remains the same as prior to the tax increase, the government's cost increases. In fact the 1 percent increase in charitable giving is financed entirely by the lost tax revenue associated with deducting contributions at a higher tax rate. In the unit elastic case the government's lost revenue is therefore transferred directly to the charity.[11] If the price elasticity of demand is above one, in absolute value, then the nonprofit sector will receive contributions that exceed the government's lost revenue, while the opposite holds when the elasticity is below one.

Knowing how sensitive charitable giving is to income and price not only enables us to determine how changes in the economy will affect charitable giving but can also help us design better tax policies for the future.

While researchers agree that giving responds to changes in income and price, there is disagreement on how much it responds to these factors. The first analyses of this question estimated the price and income elasticities using cross-sectional data. While the precise estimates varied from study to study, the general consensus was that giving was price elastic (that is, the elasticity is greater than one in absolute value) and income inelastic (that is, the elasticity is smaller than one). Most estimates on the price elasticity were in the range of −0.5 to −1.75, whereas the estimates on the income elasticity were in the range of 0.4 to 0.8.[12] As representative of these earlier studies Clotfelter (1990) uses measures of 0.79 for the income elasticity, and −1.27 for the price elasticity, with the latter clearly demonstrating that

personal deductions of donations do have the intended positive effect on charitable giving.[13]

One of the drawbacks of the cross-sectional data is that with only one year of data it is difficult to identify separately the effect of changes in income from that of prices. Since the marginal tax rate increases with income, one cannot determine whether a positive correlation between giving and income is caused by people giving more when they face a higher income or when they face a lower price.[14] More recent studies have used panel data to separate these effects. In panel data the same individuals are observed over a series of years, hence if tax rates change over the observed period then the panel can provide independent observations of income and price variations. Initial studies of panel data suggest that the cross-sectional evidence may not have correctly identified the price and income effects. For example, Randolph (1995) examines giving in a ten-year panel of tax-return data and finds results that differ substantially from those of the previous cross-sectional studies. His study reveals that people smooth their consumption. In particular, an income change causes people to change their consumption a little bit over many years, rather than immediately changing their consumption a lot. Thus an individual's consumption does not respond much to temporary changes in income. In contrast, giving is quite sensitive to permanent changes in income. The opposite pattern holds for prices. Donors appear to time their giving to take advantage of temporary changes in the tax prices, whereas permanent changes in price have but a small effect.[15]

An important policy question raised by the substantial sensitivity to temporary price changes and limited sensitivity to permanent price changes is whether the current tax incentives merely affect the timing of giving rather than, as intended, the level of giving. A large temporary price elasticity also has important implications for practitioners. If giving is very sensitive to temporary changes in the tax code then it is crucial that fundraisers are aware of such changes. For example, prior to the tax reductions of 1981 there is substantial evidence that donors were anticipating an increase in the price of giving and chose to substitute current giving for future giving. Organizations who fail to anticipate such changes are likely to miss opportunities, and they may inappropriately blame or praise their development staff for failures and successes beyond their control.

Auten, Sieg, and Clotfelter (2002) use an alternative approach to distinguish between temporary and permanent changes.[16] Opposite of Randolph's finding, they estimate a substantial permanent price elasticity and a very small temporary effect. However, they confirm the finding that the permanent income elasticity exceeds that of the temporary one.[17] Given this recent study, it is still unclear how much changes in price affect charitable giving. More research using panel data will be needed to definitively answer this difficult and important question.[18]

Recently, economists have begun to study the effects of income and price using techniques from experimental economics. While the standard economic approach examines responses from surveys or data on actual donations, experimental economists design the environment that they are interested in studying and invite volunteers to a controlled setting to observe how they respond to the provided monetary incentives. The benefit of experimental economics is that it allows researchers a large degree of control over the examined environment.[19] Despite the often abstract setting, this relatively new economic tool has proven useful in shedding light on a number of important economic questions.

For example, one question of interest is whether men and women respond differently to tax incentives for giving. It is difficult to answer this question using natural data because most data come from households where the decision may be jointly made, and data from single-member households confound gender effects with personality traits or other factors that lead one to be single (i.e., women are more likely to be the surviving spouse). In the laboratory, we control for these factors by testing a random sample of male and female respondents. Andreoni and Vesterlund (2001) examine such gender differences in giving in an experimental setting using undergraduates.[20] To ensure a simple environment, they ask participants to make decisions in a dictator game. A dictator game is a decision problem where one of two players (the dictator) is given an initial sum of money of, say, $10 and must decide how much he or she wants to give to the other player (the recipient). While this game differs substantially from the traditional charitable giving environment, transfers from the dictator suggest that he or she is altruistic, and hence we may be able to study altruism and charitable giving in this simple game. The experimental setting is generally one of complete anonymity. The identity of the participant is not known to the experimenter or to the other participants. This helps reduce unmeasurable effects such as social pressure, acceptance, and so on.

To examine the effect of changes in income and price, Andreoni and Vesterlund look at contribution decisions in a modified dictator game where both the initial allocation and the price of giving are varied. For example, they ask dictators to decide how much they want to transfer to the recipient when they have an initial sum of $6 and each dollar they decide to give away results in $2 being given to the recipient. In this case, the price of giving a dollar is experimentally set at $0.50.[21] Examining a series of choices, they determine average male and female gifts as a function of price and income.

Their results show that although neither gender is more generous than the other; there are significant gender differences in the way that they respond to changes in the price of giving. While an increase in the price of giving causes both men and women to give less, the decrease in the amount given is much larger for men than it is for women. More precisely, female giving is found to be price inelastic, while that of the males is elastic, and the male and female giving schedules as a function of price of giving are found to intersect. This shows that men will be more generous than women when it is cheap to give, and that women are more generous than men when it is more expensive to give. If this

result extends to charitable giving, then it may have important implications for practitioners. For example, charities who match contributions to decrease the price of giving may be well advised to be aware of the gender composition of their donor base.

Although the experimental environment studied by Andreoni and Vesterlund differs substantially from that of charitable giving, these results have shed light on a phenomenon that researchers had not previously thought to investigate with traditional data sets. The lesson to be learned from this study is not merely one on charitable giving, but also one on the research approach taken to examine giving. If behaviors in the controlled laboratory are consistent with those outside of the lab, then this is a simple and attractive way of studying charitable giving and the rules that govern it.

Despite difficulties in analyzing actual giving data it is reassuring that a recent study has shown that the experimental results of Andreoni and Vesterlund do extend to actual charitable giving. Andreoni, Brown, and Rischall (2003) examine the 1992 and 1994 surveys by the Independent Sector and show that one can reject the hypothesis that single men and single women have the same patterns of annual giving. They show that the male demand for giving is more elastic than that of females, and that the two demand curves for giving intersect. The same results are found when comparing giving by male and female "deciders" in married households, where the decider is the spouse who is reported to be primarily responsible for the charitable giving decisions. Again, married male deciders are far more price elastic than married female deciders.

Another experimental study on the response to price is that of Eckel and Grossman (2003). They use a method similar to that of Andreoni and Vesterlund to investigate how donors respond to variation in their initial income and price of giving. However, rather than asking a dictator to make a contribution to an anonymous recipient, they ask the dictator to allocate an amount of money between herself and a charity of her choice. To examine the effect of tax deductions they present experimental participants with a series of different subsidies. The clever feature of this study is that they also examine an alternative framing where instead of a subsidy, the participant is presented with an equivalent offer of a matching contribution. Thus, they observe donations when, for example, the subsidy is 50 percent, and when the match is 100 percent. As these subsidies and matches are mirror images of one another they should trigger the same response.

Interestingly, Eckel and Grossman find substantial differences between the match and subsidy. Donors presented with a match contribute 1.2 to 2 times more than those presented with the equivalent subsidy.

Eckel and Grossman are now extending the study to field experiments. In contrast to the standard laboratory experiment, a field experiment is one that is conducted with individuals in a natural setting; for example, the experimenter may intervene in a preexisting economic institution to observe how the actual participants of that institution may respond.[22] In the new study they will examine the effect of matches and subsidies on actual contributions to Minnesota Public Radio and other nonprofit organizations. If the field studies confirm this initial finding then the consequences may be substantial; not only does it suggest that the current fundraising and corporate practices of providing matched contributions is the right one, but it also suggests that perhaps we can generate even larger charitable contributions if we replace the personal deduction of donations with a government matching provision.

Many more research questions lie ahead. We are only beginning to understand how people respond to the price of giving. However, past studies make clear that donors do respond to the price of giving and as a result charities are well advised to anticipate future changes in these prices, as well as potential differences in price sensitivity among their contributors.

PUBLIC VERSUS PRIVATE BENEFIT FROM CHARITABLE GIVING

Although taxes influence an individual's incentive to give, they do not reduce the price of giving to zero, and thus for anyone to contribute it must be that they get some type of benefit from doing so.[23] In this section I describe some of the many benefits donors may get from giving. It is important to keep in mind that I am examining motivations for donations to a broad and heterogeneous set of institutions. These institutions vary in their purpose, philosophies, and objectives. While some organizations have a clientele far removed from the donor, there are other cases in which the donor is the client. Therefore it should be no surprise that the motives for making donations to the different organizations vary as well.

In some cases one needs to make the actual contribution to derive benefits from it, and in others one can enjoy these benefits even when the contribution is made by someone else.[24] In the first case we characterize the benefit as private and in the second as public.[25] Individual contributions will be distinctly different depending on the types of benefits that motivate them. I describe these differences and review the substantial empirical literature that has tried to determine whether the marginal benefit from giving is either public or private.

Public Benefit

The most obvious benefit from giving is the output produced by the relevant nonprofit organization. The motive for giving may simply be a wish to increase the organization's services or provision level, be it to increase the frequency or quality of art exhibits, a desire to increase the number of children fed or educated in developing countries, or simply wanting to increase the income of those less fortunate. The literature on charitable giving frequently refers to individuals who benefit from the nonprofit's output as being altruistic.

Fundraising practices seem consistent with donors benefiting from the nonprofit's output. For example, many chari-

ties now provide the donor with specific information on the potential value of contributions: UNICEF informs potential donors that $17 can immunize a child against the six major childhood diseases and $40 can provide large wool blankets to protect ten children from the cold/winter weather during an emergency, Doctors Without Borders states that $35 will buy two high-energy meals a day to two hundred children and $100 can pay for infection-fighting antibiotics to treat nearly forty wounded children.[26] Similarly, one may view the concern for organizations' fundraising and administration costs as evidence of a desire to increase the provision level. In fact, most organizations now post their overhead costs. For example, the Make-a-Wish Foundation reports that 83 percent of total support and revenues go to program services, whereas the Mercy Corps reports that 94 percent go to program services, and more recently the September 11th Fund has been faced with demands that 100 percent of funds raised during a national telethon be used to help the victims and families of the terrorist attacks.[27]

While the charity's output is a compelling motive for giving, it is unlikely that it is the primary explanation. The reason is that although many charities provide services to specific clients, the benefit of knowing that someone is being fed or clothed is not limited to a few individuals.[28] In particular, it is not possible to prevent noncontributors from benefiting as well, nor is there a cost associated with others enjoying these benefits. This implies that the nonprofit's output is nonexclusive and nonrival in consumption.[29] Goods with such characteristics are referred to as public goods. A concrete example is that of National Public Radio. Once a program has been produced and is being broadcast there are no additional costs associated with increasing the number of listeners (nonrival), nor is it possible at a reasonable cost to exclude noncontributors from listening (nonexclusive). If the benefits from giving are identical to those of a public good, then an individual benefits fully from another contributor's donation, and few will want to give on their own.[30] Specifically, someone who is concerned solely for the nonprofit's output should never give if she is unable to distinguish between the quality provided in the presence and absence of her donation. For many charities like NPR most donors should therefore choose to free-ride. This strong incentive to free-ride has brought researchers to argue that benefits other than the nonprofit's output must be the reason why practically all U.S. households choose to make charitable contributions.

Theoretical analysis of the public motive also casts doubt on it being the primary contribution motive. A model where the nonprofit's output is the sole motive for giving simply generates unrealistic predictions. Consider the classical model of charitable giving. Here it is assumed that individuals benefit solely from their private consumption and the nonprofit's output, and that each individual takes the contributions of others as given. One of the extreme predictions of this model is that an increase in taxes to fund government support of an organization will have no effect on total funding to the charity. The reason is that donors are indifferent toward the source of nonprofit funding and hence will nullify the tax by reducing their contribution to the charity dollar-for-dollar (Bergstrom, Blume, and Varian 1986; Roberts 1984, 1987; Warr 1982, 1983). This result is referred to as the complete crowding-out result since it predicts that the government's contribution will crowd out private contributions.

Bergstrom et al. (1986) show that two conditions for the complete crowd-out prediction are that the tax is limited to those who contribute to the charity, and that none of the present contributors stop giving after the tax. To see why, consider the case where the government funds its contribution to charity through a tax levied solely on noncontributors. In this case the government's contribution will have the same effect as an increase in income. Once the government has contributed, a donor can decrease her contribution to the charity, enjoy the same level of nonprofit output, and still have money left to spend. If increases in income are normally spent on both private consumption and donations to the charity, then the individual does not reduce her donation dollar-for-dollar, and total contributions to the charity may increase.

Interestingly, the possibility of increasing total contributions does not exist when there are many potential contributors. Sugden (1982) argues that when there are many donors, then an increase in one person's contribution is almost completely offset by decreases in other peoples' contributions.[31] Andreoni (1988) extends and formalizes this argument using the classical model, and he proves that when there are many donors it is not possible for a charity to increase funding by finding new funding sources. The reason is that an increase in contributions by others leads each current donor to decrease her contribution a little bit. Thus if the sole motive for giving is a concern for the charity's output, then government grants can affect the quantity provided only when there are no individual contributors.[32]

Other predictions from the classical model of giving are equally extreme. As mentioned earlier, the level of services experienced with and without the individual donation is almost the same, hence the individual has but a small incentive to give and would rather free-ride. Andreoni (1988) shows that when there are many donors this implies that both the proportion of the population donating and the average donation will go to zero. In large economies we should observe only the wealthiest donors contributing. This is clearly not what we observe in the data, where most people give and there is little variation in the percentage of income given across income levels.

Private Benefit

To better explain charitable giving it has been argued that in addition to the nonprofit's output there are many benefits that only the contributor experiences (Arrow 1974; Andreoni 1989; Cornes and Sandler 1984; Steinberg 1987; Schiff 1990). These benefits are private, as they are unique to the person who contributes to the organization. If individ-

uals derive private benefits from giving, then they will no longer view the donations by others as a perfect substitute for their private donation, and hence they will not generally prefer that donations are made by others. As this was the primary reason for the extreme free-riding and neutrality results of the classical model, these two results are weakened when donors also get private benefits from giving. In particular, it will no longer be the case that an increase in government contributions will result in a dollar-for-dollar crowd-out of private donations.

The literature has proposed a number of private benefits that individuals may experience when donating. At the most extreme level the private benefit of donating is no different from that of purchasing any other private good. Some charities offer the donor actual gifts in return for the donation—for example, recognition, welcoming or thank-you gifts, membership benefits like free tickets to events, updates on shows and exhibits, and so on.[33] Similarly, large contributors may have buildings named after them, receive exclusive dinner invites, be invited to have lunch with powerful politicians, and so on. In many instances these goods can be acquired only by making donations to the charity, and one may view part of the motivation for the donation as a mere purchase of the associated "rewards." Others may choose to contribute because doing so enables the donor to become a member of a club or a certain social circle. In these cases the donation can be seen as equivalent to the payment of a "membership fee" to be part of the community surrounding the charity. Certainly donations to the donor's house of worship carry some element of a membership fee.

Other private benefits of donating may be less tangible. For example, Tullock (1966) argues that in determining their level of giving, individuals take into consideration their evaluation of how the gift will affect their reputation. Becker (1974) suggests that charitable behavior can be motivated by a desire to avoid the scorn of others or to receive social acclaim. According to Glazer and Konrad (1996), individuals may contribute to a charity because it enables them to signal their wealth in a socially acceptable way.[34] Finally, Harbaugh (1998b) models a preference for prestige and suggests that charities, by publishing donations in ranges, actively affect the prestige associated with a gift.[35] He argues that prestige can be valuable to individuals either because it directly enters the individual's utility or because being known as a generous donor increases income and business opportunities.[36] To analyze this hypothesis Harbaugh (1998a) examines alumni donations to a prestigious law school. The law school used to report all donations but changed its policy to reporting only the categories of contributions. Consistent with the prestige and reputation argument, he finds that donors responded strongly to the change in announcements. The change to category reporting increased the proportion of donations made at the minimum amount necessary to get into a category and decreased the proportion of donations made at other amounts.

Private benefits from donating may also be more intrinsic in nature. Arrow (1974:17) argues that "the welfare of each individual depends not only on the utilities of himself and others but also on his contributions to the utilities of others." That is, "welfare is derived not merely from an increase in someone else's satisfaction but from the fact that the individual himself has contributed to that satisfaction."[37] Andreoni (1989, 1990) suggests that people may experience a "warm glow" from having done their bit. Perhaps the emphasis on sending thank-you notes is evidence that fundraisers try to maximize the warm glow the individual feels from having made a contribution. Other reasons for giving may be that it alleviates a sense of guilt. Sen (1977) suggests that contributors are motivated by "commitment" rather than sympathy. Donors may want to feel that they are doing their share, or that they are able to give back to society for the fortune that has met them. Or perhaps individuals are motivated by a "buying-in" mentality whereby they are prevented from feeling good about a charitable program unless they have made a fair-share contribution to it (Rose-Ackerman 1982).

Although these benefits differ from one another, they are all private in the sense that only the individual responsible for the donation gets to experience the benefit. Typically the approach used to model these incentives for giving is to assume that the individual's private benefit is unaffected by the donation made by others.[38] Thus donors who are solely motivated by private benefits should not respond to changes in the contributions made by others, and in particular we should observe essentially no crowd-out of individual donations when government contributions increase.

Empirical Evidence on the Motive for Giving

A substantial empirical literature seeks to determine whether the benefit of the last dollar given can be characterized as being either public or private. The typical empirical approach is to examine how an increase in government grants to nonprofits will affect giving by individuals. If the benefit is purely private, then we should observe no effect, and if the benefit is purely public, then we should see dollar-for-dollar crowd-out when the economy is large. Perhaps the most natural a priori assumption is that the benefit of giving has both private and public characteristics. The degree of crowd-out for these mixed-motive preferences has been carefully examined by Andreoni (1989), Cornes and Sandler (1984), Posnett and Sandler (1986), and Steinberg (1987).[39] Depending on the strength of the two, the degree of crowd-out will lie somewhere between complete and no crowd-out.[40] Recently Ribar and Wilhelm (2002) demonstrated that this prediction needs to be modified when there are many donors. In this case the motive for the last contributed dollar will be either public or private but not both. Thus we should observe either complete or no crowd-out, but should not expect to see incomplete crowd-out.[41]

I first review the empirical literature that has used the crowd-out hypothesis to determine why people give. While the vast majority of this work relies on actual giving data, more recent work has tested the crowd-out hypothesis using experimental methods. After I review the primary findings

on crowding out, I conclude the section by discussing a series of experimental studies that move beyond the crowd-out hypothesis and more directly test the motives for giving.

I begin by examining the literature that uses either survey, giving, or tax data to determine how changes in government grants to nonprofits affect private giving to the nonprofit sector. For example, using tax data, Abrams and Schmitz (1978, 1984) show that government grants crowd out private contributions at the rate of about 28 percent; thus if the nonprofit sector were to receive an additional $100 in government grants, then individual contributions would decrease by $28. Using similar data, Clotfelter (1985) estimates that crowd-out is only 5 percent. The degree of crowd-out found in both of these studies suggests that a concern for the nonprofit's output is not the primary reason for giving.

One of the difficulties in examining tax data is that only the average degree of crowd-out across nonprofits can be determined. Alternatively, Kingma (1989) examines data on giving to National Public Radio. Using these data he is able to directly connect giving to the local NPR station to the grants that were given. Interestingly, the degree of crowd-out found in these data does not differ substantially from that found in larger data sets. The estimated crowd-out is merely 13.5 percent.[42] Kingma and McClelland (1995) reanalyze the same data using more sophisticated methods and come to the same conclusion, that there is very limited crowd-out.[43]

Surveying the literature on crowd-out estimates, Steinberg (1991) concludes that most studies have rejected the hypothesis of complete crowd-out and found the degree of crowd-out to range from 0.5 percent to 35 percent per unit of government spending.[44] One reason why the evidence speaks so strongly in favor of a private benefit from giving may be that many of the examined charities are national charities. Perhaps the private motive will be smaller if we examine nonprofits that have a clientele far removed from the donor, such as international relief organizations. If anything, one would expect that the concern for the charity's output is larger in this case. Recent evidence, however, suggests that this is not the case. In a very careful econometric study Ribar and Wilhelm (2002) examine a 1986–1992 panel of donations and government funding from the United States to 125 international relief and development organizations. The evidence suggests that the benefit that drives people to increase their contribution is private. They find that private donations at most decrease by thirteen cents for every dollar increase in government funding; however, in most cases they cannot reject the hypothesis that an increase in government funding has no effect on private giving. They conclude as others before them that the motive for giving an additional dollar is private, and that on the margin individuals are not concerned about the charity's provision level.[45]

One of the difficulties in drawing inferences from surveys or data on actual donations is that the data do not reveal whether the limited degree of crowd-out is driven by donors not being concerned for the provision of the nonprofit's output, or by the model not accurately describing the giving environment. For example, the lack of a response may signify a lack of information more than a private motive for giving. If donors are not informed of the government's donation to the organization then how can they respond to changes in the government's grants?

One environment with more control over such factors is the experimental lab. Here the experimenter controls the information, and hence the lab may present a cleaner environment in which to test the crowd-out hypothesis and thus to examine motives for giving. The primary difficulty is, of course, to determine the extent to which the experimental results extend to the real world.[46]

The experimental studies on crowd-out tend to find stronger evidence of a public motive for giving than those using survey or tax data. Typically, two different games have been used to examine crowd-out in the lab. One is the dictator game, and the other is the public good game. In the latter subjects are paired anonymously in small groups of, say, four individuals. Every individual in the group is given an allocation of money and asked to choose how much she wants to contribute to a public good and how much she wants to spend on a private good. Purchases of the private good benefit only the individual, whereas contributions to the public good benefit every member of the group. For example, each dollar in the private good may result in the individual earning one dollar, while each dollar contributed to the public good by any member generates an earning of fifty cents to that member and every other member of the group. Obviously an individual who is concerned solely with maximizing her private payoff will not contribute anything to the public good in this example. However, an individual may appreciate that although a contribution to the public good will cost her fifty cents, it will also increase the payoffs to each of the other group members by fifty cents. Someone who is altruistic and concerned for the payoff of others may decide that this payoff warrants a contribution.[47]

Andreoni (1993) is the first experimental study to assess motives for giving by looking at crowding-out behavior. This study relies on a modified version of the above public good game in which even subjects who care only about their own monetary returns would contribute some amount to the public good. He compares contributions in two different public good games. In one game donors are free to contribute any amount between zero and seven units, and in the second they are forced to contribute a minimum of two units and can choose any additional contribution between zero and five. The latter game is meant to simulate the situation where all contributors are faced with a tax that subsequently is contributed to the public good. If all donors contribute in both treatments then complete crowd-out implies that we should see no difference in total contribution levels between the two environments. If, for example, the average contribution level is 3.5 in the first treatment, then we would expect to see average individual donations decrease to 1.5 in the second treatment. However, if participants also derive a private benefit in the form of, say, a warm glow, then the forced

donation is not a perfect substitute for the private donation, and we expect to see larger total contributions in the latter case. That is, we may see individual donations falling to, say, 2 instead of 1.5. Andreoni (1993) finds that total contributions in the second environment exceed those of the first—however, not by as much as one would have expected based on the previous empirical studies. He finds an average crowd-out of 71.5 percent over all rounds of the game and finds crowd-out of 84 percent in the last period of the game.[48] Relative to the previous crowd-out experiments, this suggests that in the experiment subjects are much more concerned about the size of the public good.

Bolton and Katok (1998) examine crowding-out by comparing donations in two different dictator games.[49] In one game the dictator is given $15 and the recipient is given $5, and in the other game the dictator is given $18 while the recipient has $2. By comparing contributions in the two games the authors determine whether donors take account of the amount of money given to the recipient. Complete crowding-out predicts that donors who gave more than $3 in the $18/$2 treatment would decrease their contributions by $3, and donors who gave less than $3 are expected to make no transfer in the $15/$5 treatment. By examining the average transfer in the two treatments Bolton and Katok (1998) find that 60 percent of the original transfers were crowded out when the original allocation to the recipients was increased by $3.[50] Thus they too find larger evidence of crowd-out in the lab.

Eckel, Grossman, and Johnston (2005) recently extended Bolton and Katok's study to real charities. Rather than having individuals transfer funds to an anonymous participant in the experiment they asked subjects to transfer funds to a charity of their choice. They considered two different frames; in one subjects were simply informed of the initial allocation ($18/$2 or $15/$5), and in the other the subjects were told that of their initial $20 entitlement $2 or $5 had already been taxed and given to the charity. Their results reveal great sensitivity to framing. In the neutral frame they observed essentially no crowd-out and in the tax frame they found complete crowd-out.

Finally, some experimental studies do not rely on the crowd-out hypothesis to determine the motives for giving. Palfrey and Prisbrey (1996, 1997) examine a series of public good experiments where the payoff from the public good is the same for all members of the group, while the payoff from the private good varies from person to person. By varying the relative benefits from the private and public good the authors can determine whether individuals donate primarily because they are confused, or because they derive either a private or public benefit from giving.[51] In contrast to other experimental evidence Palfrey and Prisbrey find that altruism cannot help explain the observed contribution patterns. Instead, it appears that error and warm glow both play a significant role in explaining giving patterns; however, the warm-glow effect is found to be low in magnitude.[52]

Using an alternative procedure Goeree, Holt, and Laury (2002) also examine charitable contributions in a series of situations where the return from the public and the private good varies.[53] In contrast to Palfrey and Prisbrey they find that contributions are increasing in the return to others and in the size of the group. Both of these findings are consistent with an altruistic motive, as increasing the size of the group and holding the individual's return from the public good constant suggests that at a fixed cost more people are receiving the benefit from the public good. In estimating the motive for giving they find that behavior is consistent with a strong public motive, whereas there is no evidence for a private motive for giving.

Although the experimental evidence is somewhat mixed, most studies find stronger evidence of public motives for donating than that observed when using survey or actual donation data. How do we reconcile these opposing findings? The most obvious explanation focuses on the many differences between actual donations and those of the experiment. One explanation for the different behaviors may be that the available information varies substantially between the two environments. Another is provided by Ribar and Wilhelm (2002), who cleverly suggest that a reason for the contradictory evidence may be that while there are only a few contributors in an experimental study, there are many contributors in the empirical studies. They show that when donors derive both public and private benefits from giving, incomplete crowd-out is predicted only when there are a small number of donors. If, however, there are many donors, the prediction is that one motive will dominate on the margin. That is, the motive for giving the last dollar will be either private or public. This implies that we should observe incomplete crowd-out only when the population size is small. The conflicting evidence may suggest that while the benefit of contributing in small groups has both private and public characteristics, the benefit from individual donations in large groups has only private characteristics.

In making comparisons between the experimental and nonexperimental environments it is important also to be aware that sometimes the definitions of the public benefit vary between the two. For example, the standard empirical and theoretical approach assumes that the public benefit is the benefit the individual donor gets from the nonprofit's output. In contrast, the experimental literature occasionally argues that the public benefit also depends on the benefit that others derive from the public good.[54]

The implication of the Ribar and Wilhelm result is substantial as for most charities there are many donors, and taken at face value this result suggests that these donors do not contribute out of a concern for the charity's output. Combined with the extreme and unrealistic neutrality results of the classical model of charitable giving it is not surprising that many doubt that donors contribute because they have publicly motivated or altruistic preferences. While we may critique the empirical findings on grounds of lack of information, it is harder to get around the extreme theoretical predictions of the model. The fact is that many people contribute to charities, and this observation is inconsistent with the prediction of the classical model of charitable giving.

So, is it really the case that donors do not care about the nonprofit's output? One possible explanation of the extreme predictions of the classical model may be that the results rely heavily on a few perhaps strict and unrealistic assumptions. In the next section I briefly review some of the work that has relaxed the underlying assumptions of the classical model of giving.

RELAXING THE ASSUMPTIONS OF THE CLASSICAL MODEL

While one would expect there to be private benefits from giving, it is surprising that public benefits appear to have no influence on giving. How is it possible that the incentive to give does not depend on the quantity of the nonprofit's output? It is certainly not consistent with the surveys on donor motivations, which find that individuals contribute because they care for the nonprofit's mission, project, or program.[55] Are donors simply wrong about what motivates them to give? In this section I relax assumptions of the classical model to see if we can maintain that contributions are due to a concern for the nonprofit's output while generating less extreme free-riding predictions.

I focus on cases that modify the standard prediction of negative correlation between individual contributions—that is, the prediction that an increase in one individual's contribution decreases that of another. First I consider the possibility that social norms and rules may cause individual contributions to be positively correlated. Second I relax the assumption that individuals take the donations of others as given. Charitable funds are often raised over time, and in these cases individuals may very well account for the effect their donation has on others. I conclude the section by discussing a couple of fundraising mechanisms, such as matches and raffles, that also help reduce the negative correlation between individual contributions.

Overall, the reviewed literature has yet to be subjected to the same degree of scrutiny as the literature examined earlier. However, preliminary results suggest that there are cases where donors are concerned about the nonprofit's output, yet an increase in a donor's contribution need not decrease that of others; in fact, it may even increase it. This is a crucial finding as it may weaken the extreme neutrality and free-riding results of the classical model.

Social Norms and Rules

The economics literature generally assumes that individuals are free to choose as they please as long as it is within their financial means. This is also the assumption of the classical model on charitable giving; however, some have argued that it is less appropriate because giving decisions often are guided by social norms and rules. If that is the case then the charitable giving model needs to account for the constraints imposed by the norms by which people abide.[56] The literature has proposed a number of alternatives. One of these has often been referred to as the "Kantian" rule (see, e.g., Laffont 1975).[57] This rule requires that those individuals who care about the services provided by a nonprofit will choose a contribution that equals the amount they would most prefer that the other members of the group should contribute. The implications of the Kantian rule are just as extreme and unrealistic as those of the classic model. Instead of extreme free-riding we should see everyone contributing a socially optimal amount to the charity, and instead of individual contributions decreasing with increases in those of others, we now predict that the individual's contribution level is independent of that of others.

Alternatively, Sugden (1984) proposes that individuals subscribe to a principle of reciprocity.[58] He questions that we follow a norm which dictates that we contribute irrespective of what others are doing. Why would we help someone who refuses to help us? Instead, Sugden suggests a principle of conditional commitment that does not require that you always contribute to the public good, but rather that you must do so if everyone else in your reference group does. Specifically, if the donor's preferred contribution level by the other members of the group is no smaller than the current minimum contribution, then the donor must contribute an amount that is at least as large as the minimum contribution in the reference group.[59] The individual's reference group is any group of individuals who benefit from provision of the same public good. While people who abide by the principle of reciprocity may contribute a socially optimal amount, they may just as well provide less than the optimal level. In contrast to both the classical model and that of the Kantian rule, Sugden's model predicts that an individual's contribution will increase when people in his or her reference group increase their contributions.

Interestingly, a positive effect of the contributions of others is consistent with evidence from Andreoni and Scholz (1998).[60] They examine data from the 1985 Consumer Expenditure Survey to determine whether donors respond positively to an increase in donations by others in their reference group. Given the available data they are limited to defining a reference group in a socioeconomic sense and cannot take account of geographic proximity. They find a positive effect of an increase in donations by others in the same "social reference space," which is defined as those of similar age, education, occupation, and residence (urban or rural). Specifically, they show that a 10 percent increase in donations by others in the reference group will cause the individual's donation to increase by 2 percent to 3 percent.[61]

The work on norms typically does not analyze how a certain norm or rule may develop; however, Holländer (1990) shows that when individuals care about social approval and this approval is a function of the extent to which the individual deviates from the average contribution among her peers, then approval or disapproval may be what triggers the individual to feel that the norm applies to her.[62]

The literature on norms suggests that incorporating them into the classical model may weaken the predictions of the model. However, before adopting these rules it is important that we gain empirical evidence in their favor. When should

we expect such norms to be in effect? When will they constrain behavior? In the next section we present experimental results that test for the effect of reciprocity and find that in some environments reciprocity appears to play a small role, if any.

Accounting for the Contribution Behavior of Others

The classical model of charitable giving relies on the assumption that people make a one-time contribution and that in doing so they take the behavior of others as given. This implies that individuals do not account for the effect that their contribution may have on that of others. There are many situations, however, where this is not a reasonable assumption. For example, if people jointly contribute to the same charity more than once then they may consider the effect their current donation will have on the future donations of others. As a simple illustration consider the case where a group of neighbors all benefit from a nearby park. To maintain the park they each voluntarily contribute $40 for maintenance per month. If an individual fails to contribute in a particular month then it is quite possible that this will affect future maintenance contributions. Hence in choosing the preferred contribution now, the individual may take into account how her decision affects the future behavior of others.

This section examines a series of studies that point to environments where donors naturally are aware of the interdependencies between contributions. I start by discussing the effect of repeated interaction among donors. I then examine another case where donors naturally anticipate the effect their contribution will have on that of others. In particular, I review a recent study on the effect of publicly announcing past contributions to future donors. A public announcement may influence the amount given by subsequent donors, and it is likely that current donors take this effect into account prior to contributing. Both repetition and public announcements may reduce, remove, or reverse the negative correlation between individual contributions. I finish the section by showing that fundraising mechanisms, such as matches and raffles, also can cause individual contributions to be positively correlated. Throughout the section I focus on whether the predictions from the classical model (where donors are solely concerned with the nonprofit's output) are sustained. Of particular interest is whether an increase in an individual's donation may increase the amount contributed by others.

Repeated interaction. Donating to charity is rarely a one-time event; rather, people typically contribute to the same charity year after year. Whether repeated interaction affects the predictions of the classical model depends on the time horizon of the interaction. If donors believe that they may always contribute to the charity then the contribution game is one of infinite repetition, and the predictions of the classical model are quite different. In particular, the extreme free-riding result need not hold. With infinite repetition it is possible for contributors to threaten potential noncontributors with punishments that are large enough that individuals prefer to contribute despite their short-run incentive to free-ride.[63] For example, if donors choose to punish free-riders by withholding all future contributions, the long-term cost of free-riding may exceed the short-term benefit, and it will be possible to sustain cooperation.[64] However, if everyone recognizes that these interactions will eventually end, then such a strategy is not sufficient. To see why, consider the last period of the interaction. At this time donors recognize that there is no possibility of future punishments, and accounting for their last period incentives they choose to free-ride. With no cooperation in the last period, there is no threat of punishment in the second-to-last period either, hence people will free-ride in that period as well as in any period before that. Thus, cooperation collapses if the interaction is finitely repeated. Since finite repetition by itself has no effect on the predictions of the classical model we generally view the assumption of one-shot interaction as a simplifying one.

Marx and Matthews (2000) show that the effect of finite repetition is sensitive to the characteristics of the nonprofit's output. The assumption in the models I have examined so far was that a small increase in contributions also results in a small increase in the benefit from the nonprofit's output; however, this is not always the case.

Marx and Matthews consider instead the case where completion of a project results in a discrete jump in the project's benefit. While every contribution is beneficial in and of itself, the donation that completes the project derives a benefit that exceeds that of any donation before it. For example, there are benefits from helping members of a poor community, but the full benefit may only be enjoyed when the community becomes self-sufficient. Similarly, there were benefits of every shot of smallpox vaccination, but the benefit of the shot that secured that enough were vaccinated and the virus was unviable was greater than any before it.

When the nonprofit's output exhibits discrete jumps then repeated contribution to the project can result in outcomes that reduce or even remove the free-riding result of the one-shot interaction. Repetition allows the use of a "little-by-little" mechanism whereby donors can complete the project over several rounds. Although donors may not be willing to contribute to the charity when everyone makes one-time and simultaneous contributions to the project, it may be possible to raise sufficient funds when donations are raised a little at a time.

To see why several contribution rounds may secure provision of the public good, consider a case where the desired threshold for the project may be reachable if the fundraiser decides to raise a third of the project at a time. As in my earlier example, donors may choose to contribute as long as one-third of the donations were raised in the last period, and they may stop contributing if insufficient funds were raised in the previous period. If this threat of punishment is large enough donors may choose to cooperate. A sufficiently large discrete payoff jump secures that a contribution level can be reached where a donor is willing to complete the project although there is no threat of future punishments. This little-

by-little mechanism can succeed in providing the project because gradual commitment of other donors and the reduction in the donor's per-period obligation both reduces the benefit and increases the cost of free-riding, and makes it worthwhile for individuals to continue to contribute to secure completion of the project.[65] When funds are raised over several rounds and there is a discrete benefit jump at completion then the extreme free-riding prediction from the classical model need not hold.

Public announcements of past contributions. Another case where individuals may consider how their contribution affects that of others is when donations are announced to potential future donors. The practice of announcing contributions is quite common. For instance, during fund drives potential donors may be informed of past contributions and in particular of major individual contributions. Capital campaigns are typically launched by the announcement of a large "leadership" contribution, and new donors and their pledged amounts are made public throughout the campaign. Similarly, churches collect contributions in open baskets, and recurring fundraising campaigns inform donors of previous contributions made in the local community or at the latest charity event.[66] Empirical evidence on announcements helps us understand why fundraisers may prefer this strategy. For example, Silverman et al. (1984) examine data from a national telethon in which three different funding schemes were employed. Their results show that announcing the names of individuals pledging money and the amount of money pledged resulted in greater contributions than when they were not announced.

The literature on announcements has primarily focused on explaining why announcements may increase contributions. We maintain this emphasis, but also examine whether the results are likely to alter the crucial prediction that individual donations decrease when those of others increase.

The reason why economists have been interested in announcements is that simple extensions of the classical model cannot explain the phenomenon. Comparing contributions without announcements to those that arise with announcements, Varian (1994) shows that private contributions are largest when donors are uninformed of the contributions made by others. The reason is that the initial donors will make a small initial contribution and thereby leave it up to those who follow to contribute to the charity. Thus the initial contributors will free-ride off subsequent contributors. This result, however, relies on the assumption that the donors can commit to giving only once. Relaxing this assumption, predicted contribution levels with and without an announcement are identical.[67] Thus, extending the classical model to account for the sequential contributions does not enable us to understand why announcements may increase contributions.

I consider a number of modifications to the model that may help us understand why fundraisers announce past contributions. I examine whether the success of announcements may be due to the private benefits of giving, the characteristics of the nonprofit's output, uncertainty about the quality of the nonprofit, reciprocity, or a concern for the status of the nonprofit's other donors.

Perhaps the classical model's failure in explaining announcements is just additional evidence that we need to extend the motives for giving to incorporate a private benefit. Announcements may be effective because they increase the donor's private benefit from giving; for example, announcements may provide the donor with prestige or the ability to signal her success or wealth.[68] While compelling, this argument is not a sufficient explanation of the announcement phenomenon. The reason is that announcements are viewed to be effective because they may increase the donations not only of those who have their contribution announced but also of those who follow. For instance, characteristic of Brook Astor's philanthropic endeavors is that others tend to copy her contribution after news about her donation. "When she gave one donation to the New York Library, for example, three other major gifts—from Bill Blass, Dorothy and Lewis B. Cullman, and Sandra and Fred Rose—all followed, with her generosity cited as the inspiration."[69] The chairman of the trustees of Johns Hopkins University explains that the reason that the university asks donors for permission to announce their gifts is that "fundamentally we are all followers. If I can get somebody to be the leader, others will follow. I can leverage that gift many times over."[70] This suggests that a large initial contribution can increase the donations of those who follow. This is exactly opposite of the predicted negative effect of the classical model. Explaining announcements may therefore also improve our understanding of public motives for giving.

One case where announcements may affect the contributions of others is when a certain threshold of funds must be collected before any of the nonprofit's output can be produced; this would be the case if there is a fixed cost associated with the production of the project. Such a project is referred to as a threshold project. Under the assumption that donors derive solely a public benefit from giving, Andreoni (1998) shows that the lack of announcements may result in two possible outcomes: the project either is or is not provided. He makes the point that announcements provide donors with an inexpensive method of coordinating on the positive provision outcome. Thus when the project is of the threshold type, announcements may increase contributions of both the leader and those who follow.[71]

What about the classical case where an increase in contributions always increases the nonprofit's output? The evidence by Silverman et al. (1984) suggests that announcements also are effective in this case, and both List and Lucking-Reiley (2002) and Shang and Croson (2003) show that in such cases individuals contribute more when the announced contribution is large.[72] Romano and Yildirim (2001) suggest that we consider the broader interaction between the private and public benefit to better understand this effect of announcements. They show that announcements increase overall contributions if individuals benefit from the donations of others and the benefits from giving are such that followers increase their contributions when those of leaders in-

crease. The reason is that the leader will take the positive response into account when contributing first, and increase the contribution relative to when it is not announced. Announcements may therefore increase contributions to the charity.

One explanation for the positive correlation between initial and subsequent contributions is that past contributions may serve as a signal of the nonprofit's quality. In particular, large initial contributions may suggest to future donors that this is a charity worth supporting. While the literature on nonprofits generally assumes that donors know how productive or efficient a nonprofit may be, there are many circumstances where this is not the case.[73] But why are initial contributions needed to convince future donors of the quality? Can't the nonprofit simply reveal its quality to the donors? The reason why contributions are a good signal of quality is that all fundraisers have an incentive to convince donors that they are representing a high-quality charity, thus unverifiable information provided by the fundraiser will not be credible. In contrast, announcing past contributions is a credible way for the fundraiser to reveal the nonprofit's quality.[74]

Vesterlund (2003) examines an environment where past contributions are used as a signal of quality. She shows that an initial donor, who knows that his contribution will be announced, will investigate the quality of the charity before donating, and that the donor subsequently reveals the quality through his contribution.[75] A sufficiently large initial contribution informs future donors that the charity is of high quality and they too will make a large contribution. Announcements enable the high-quality charity to reveal its type and secure a higher contribution level than would arise absent announcements. High-quality charities will therefore always choose to announce past contributions. To not reveal their quality, low-quality charities will also announce past contributions. Thus in environments where there is uncertainty about the quality of the charity, we should expect fundraisers to announce past contributions.

Relaxing the assumptions that everyone contributes simultaneously to a nonprofit organization of well-known quality not only helps explain why announcements may be effective, but it also shows that even when donors care only about the nonprofit's output, an increase in one donor's contribution may increase that of others. As the announcement serves as a signal of quality we refer to this as the signaling hypothesis for announcements.

An interesting insight of the signaling model is that contributions to the high-quality charity exceed the level that results when the charity's quality is common knowledge. Thus announcements not only help high-quality charities to be recognized as being worthwhile, but also help them reduce the traditional free-rider problem. Furthermore, an implication of this model is that contributions are larger when the fundraiser solicits the wealthier donors first. The model therefore provides an interesting explanation for a phenomenon that is often observed but not well understood.[76]

Another explanation for the effectiveness of announcements may be that they trigger a social norm of reciprocity (see my earlier description). Seeing that someone contributes a large amount to the nonprofit may make others feel obligated to behave with similar kindness.[77] Thus reciprocity may create a positive correlation between contributions, and fundraisers may be able to trigger this reciprocity norm by publicly announcing previous contributions.

While the reciprocity and signaling hypotheses complement each other in explaining why announcements are successful, it is of interest to determine whether there are environments where we can distinguish between the two. Of particular concern is the signaling hypothesis. Donors need to be quite clever for signaling to work, and one may wonder not only whether future donors use past contributions to infer the nonprofit's quality, but also whether the initial donor anticipates this response.

Potters, Sefton, and Vesterlund (2001) examine responses in two-person public good experiments to distinguish between the signaling and reciprocity hypotheses and to determine if signaling may be a likely explanation for announcements. They ask two questions: first, when only the initial donor knows the value of the public good, do announcements cause contributions to increase? Second, if contributions are higher with announcements, could this be due to reciprocity rather than signaling? To answer these questions they study behavior of undergraduates in four simple treatments. In two of them the first potential donor, but not the second, is informed of the quality of the public good, and the authors examine the effect of informing the follower of the leader's contribution. According to the signaling hypothesis, higher contributions are predicted when the leader's contribution is announced. To assess the extent to which reciprocity, rather than signaling, causes contributions to increase they conduct two additional treatments to examine the effect of announcements when both donors are fully informed of the quality of the public good. These four treatments allow them to test the predictive force of the signaling hypothesis and also to calibrate the effect of reciprocity considerations.

Their results are broadly consistent with the signaling hypothesis. Followers in the asymmetric-information treatment tend to mimic the leaders' contributions, and leaders anticipate this inference. Thus leaders internalize the response of subsequent donors, so that the leader's private incentives become aligned with those of the group. As a result, announcements cause a substantial increase in contributions. In contrast, announcements have a negligible effect on contributions when the quality of the public good is known by both players. Combined, the two results suggest that the observed success of announcements is unlikely to be caused by reciprocity, and it does not appear that the interaction between private and public benefits of giving results in an individual generally increasing contributions with those of others. Ruled out in this experiment is also the possibility that the observed increase in contributions from announcements is due to a concern for status. For example, there is no evidence in the complete information treatment that announce-

ments provide the leader with status, and that the followers subsequently give to get status as well.[78]

While status does not appear to affect behavior in the neutral experimental study, there is ample anecdotal evidence to suggest that actual donations are influenced by concerns for status. For example, charities often launch a campaign by announcing which high-status donors are on board, suggesting that we may prefer to give to charities that have a high-status donor base. Perhaps the decisions of Blass, Cullman, and Rose to follow Brook Astor's lead in contributing to the New York Library were motivated as much by status as the uncertainty about the quality of the library.

Kumru and Vesterlund (2003) examine whether it is optimal to announce contributions when donors are concerned about the status of other donors to the charity. Following the work by Ball et al. (2001) they assume that donors exogenously are given status, and that they prefer to be associated with individuals who have higher status than themselves. They show that it is optimal to announce contributions in such an environment, and that the high-status donor should be the first to give. While a high-status donor prefers not to be associated with low-status donors, these donors will subsequently mimic his donation and contribute an amount large enough to entice the high-status donor to contribute first. Thus the prediction is once again that we may observe a positive correlation among individual donations.

Since the theoretical result is sensitive to how concerned donors are with status, one may question the real-world implications of this model. To study the effect of status on charitable giving Kumru and Vesterlund conducted a series of two-person public good experiments. Following Ball et al. they induced status by asking participants to take a short quiz. Participants were then assigned to either a star or a no-star group, and were informed that in each round of the experiment they would be paired with a member of the other group. All contributions were done sequentially. In one treatment members of the star group were first to give, and in the second they were last to give. The authors find that overall contributions to the public good double when members of the star group contribute before the no-star group. As predicted by the theory, they find a strong positive correlation between individual contributions when members of the star group are first to give.

Matches and raffles. While announcing contributions is one method fundraisers can use to reduce the negative correlation among individual donations, another obvious one is to design the campaign such that the contributions by some donors are matched by those of others. If a donor is willing to contribute the same amount through a match as through a direct monetary contribution, then it is clear that the organization should prefer that the money be given as a match. While a direct contribution decreases the contributions of others, a match increases it.[79]

Another procedure that may reduce the free-rider problem is to raise contributions through a fixed-prize raffle. Morgan (2000) compares the contribution level that results from a raffle to that of direct voluntary contributions. He finds that contributions always are larger with a raffle, and that they increase with the size of the prize.[80] The reason is that the chance of winning is reduced every time someone buys a raffle ticket, hence to maintain the same likelihood of winning the individual has to buy more tickets. The increased competition to win the raffle counteracts the decrease in the incentive to contribute to the charity. Experimental results by Morgan and Sefton (2000) confirm that contributions are larger with a raffle than through voluntary contributions, even after accounting for the cost of the raffle prize. Duncan (2002) objects that Morgan's results are sensitive to some of the assumptions he makes.[81] He shows that the prize may be so large that people contribute less with a raffle than without it. However, although larger prizes do not always cause people to buy more tickets, Duncan demonstrates that there is always a prize such that contributions are larger with a raffle than without it.

The results presented in this section still need to be extended to more general environments; however, they suggest that realistic extensions of the classical model may alter the critical prediction that individual donations decrease when those of others increase. As this is the driving force for the extreme predictions of the classical model, this avenue of research is promising for determining whether it is unrealistic to assume that donors benefit from the nonprofit's output.

In this chapter I have provided a brief review of what economists have learned about why people contribute to nonprofits. While many questions have been answered, many others lie ahead. On one hand there is agreement that people give more when it is cheap to give and when their income is large, but on the other hand there is disagreement on how sensitive giving is to temporary and permanent changes in these variables. Future research using panel data is needed to settle this dispute. There appears to be more agreement among those who examine the motives for giving. I argued that the benefits from giving have either private or public characteristics. That is, some benefits can be experienced only by the individual contributing, while others can be enjoyed even when the contribution is made by other donors. Researchers typically rely on the predictions of the classical model of charitable giving when determining whether the benefits from giving have private or public characteristics. The vast majority of the empirical research on this topic has found that private benefits are the primary motive for giving. As a result most researchers agree that there is limited evidence to support the common belief that donors give because they care about the nonprofit's output. This finding is puzzling and surprising because most donors claim to contribute in part because they want to affect the nonprofit's output. One possible explanation for this extreme finding is that the predictions of the classical model mislead us when we interpret the data.

The classical model of charitable giving relies on a series of assumptions, some of which may be a poor approximation to the environment in which giving takes place. We relax some of these to see if we can maintain the assump-

tion that contributions are driven by a concern for the nonprofit's output while generating less-extreme free-riding predictions. We find that a number of factors may reverse the prediction that an increase in a donor's contribution causes those of others to decrease. In particular, the prediction is sensitive to social norms, the extent to which we may interact with other donors again, the characteristics of the nonprofit's output, the benefits from giving, the uncertainty regarding the quality of the charity, and the status of other contributors. Much of this literature is still in its infancy and the full implications of these modifications are not well understood. However, by incorporating these features into more general models we may be able to better describe actual giving behaviors, and to understand what motivates individuals to contribute.

Another approach that may prove useful for future research is to more carefully model the public benefits of giving. While the common assumption is that the benefit from the nonprofit's output is independent of the number of people who benefit from it, the experimental literature has begun to view the individual's benefit from the public good as increasing the number of people who derive the benefit. That is, the benefit we get from contributing to public radio may depend both on the quantity and quality of public radio and on the number of people who get to experience it. While the literature has not acknowledged these two types of public benefits, this distinction may be important when modeling how people contribute, and in particular when we use the generated predictions to empirically determine why they contribute.

NOTES

1. Independent Sector (2001).
2. Similar to donating money or goods, volunteering also requires that individuals make resources that belong to them available to others. That is, both acts require a voluntary transfer of property. While similar, analysis of volunteering involves a different set of tools and is covered in Leete (this volume). If the objective is to examine the combined effect on giving and volunteering then one should be careful about separating these two (see Duncan 1999). Note also that the broad social and cognitive psychological literatures on motivation, attitudes and behavior, and decision-making and help-giving behavior are not included herein.
3. Corporations and foundations account for 16.5 percent of total dollars given (U.S. Census Bureau 2002).
4. The government's objective in using tax subsidies is not merely one of maximizing contributions (this could always be done at 100 percent subsidy). Rather, an optimal subsidy is characterized by the fact that marginal social benefits equal the marginal social costs. This is discussed more generally later in this chapter, and Simon, Dale, and Chisolm (this volume) provide a careful discussion of these design issues.
5. The marginal tax rate is the tax rate levied on the last dollar earned.
6. Relative to a cash transfer the donation of an appreciated asset is preferable; the reason is that no tax is assessed on the capital gain that would arise had the asset been sold. See Simon, Dale, and Chisolm (this volume) for a review of tax laws that affect giving.
7. The seven motivations were in descending order of importance: (1) pragmatic considerations of personal and community benefits; (2) devotion to religious principles and institutions; (3) awareness of tax advantages; (4) interest in social functions and networks attached to charitable activities; (5) perceived obligation to repay an institution for past services received; (6) altruism as a moral imperative; and (7) desire to continue family tradition of giving (Prince and File 1994).
8. To determine the overall effect on giving one needs to account for how taxes affect both income and price of giving; for example, decreasing the marginal tax rate will not only increase the price of giving but will also increase the donor's disposable income.
9. The proportion of income given as a function of income typically decreases with income at small income levels, and increases with income at higher income levels. Thus it is U-shaped, with the largest proportion of income given by low- and high-income households. See O'Herlihy, Havens, and Schervish (this volume) for a careful discussion of what may cause this U-shaped pattern.
10. If the government is less efficient in providing for public goods than the private sector then the threshold for efficiency could be closer to zero (see Feldstein 1980). Necessary for a unit elastic demand to be the threshold for efficiency is also that individuals truly make the contributions they report on the tax form, and that the government is able to make a direct transfer without adversely affecting the contributions by others. Slemrod (1989) emphasizes that if contributors deduct amounts larger than their actual contributions then a larger revenue is lost, thereby indicating that the price elasticity needs to be above one, in absolute value. Roberts (1987), on the other hand, argues that if an increase in government donations decreases donations of others then the efficiency threshold for the price elasticity needs to be below one in absolute value.
11. See Roberts (1987) and Schiff (1990) for careful illustrations of this point.
12. See Clotfelter (1985, 1997) and Steinberg (1990).
13. European studies generally find that giving is less sensitive to price.
14. To separate the income and price effect, Feenberg (1987) examines data that include information on the taxpayer's residency. This allows him to also incorporate differences in state income taxes, and hence he observes similar individuals with the same income and different prices, thereby allowing him to identify the two effects.
15. More precisely, Randolph (1995) finds that the permanent income elasticity is 1.14 and that the temporary income elasticity is 0.58; thus the previous cross-sectional studies appear to underestimate the permanent income elasticity. In contrast, the price elasticity appears to have been overestimated. He estimates the temporary price elasticity to be -1.55.
16. See also Barrett, McGuirk, and Steinberg (1997), who examine the short- versus long-run reaction to a change in price or income experienced during a specific year.
17. The estimates on permanent income elasticity range between 0.40 and 0.87, and the estimated temporary elasticity ranges from 0.29 to 0.45. The estimates on the permanent price elasticity range from -0.79 to -1.26, and that of the transitory range from -0.4 to -0.61.
18. Some studies suggest that it is important to simultaneously estimate the effect of taxes on volunteering and giving of money. Menchik and Weisbrod (1987), Brown and Lankford (1992), and Andreoni, Gale, and Scholz (1996) find that volunteering and gifts of money are complements; hence we may be underestimating the net effect of taxes when examining solely the effect of taxes on dollars given.
19. See Kagel and Roth (1995) for a general review of experimental economics.
20. To be able to replicate experimental results easily, researchers tend to rely on undergraduate subject pools. Typically the concern is whether the qualitative rather than the quantitative results extend to other populations. Studies that have examined this question tend to find that the undergraduate sample is a reasonably representative one. A

subsequent study by Andreoni, Brown, and Rischall (2003) reveals that the gender results of Andreoni and Vesterlund (2001) do extend to individuals who are not undergraduates.

21. At the extreme, allocations of $6 to self or $12 to the recipient were available; however, any allocation in between was available as well, e.g., $4 to each player.

22. Harrison and List (2004) propose six factors that can be used to identify the field context of an experiment: the nature of the subject pool, the nature of the information that the subjects bring to the task, the nature of the commodity, the nature of the task or trading rules applied, the nature of the stakes, and the environment that subjects operate in.

23. This result relies on the fundamental economic assumption that people are self-interested, thus individuals make costly charitable contributions only because they have a preference for doing so. Note that the selfishness assumption need not imply that the individual simply aims to maximize her material payoff.

24. I will not discuss why an individual may have a preference for giving. However, Schervish and Havens (1997) suggest that it may be caused by an experience in one's youth. Boris (1987) concludes that it is associated with religious heritage, personal philosophy, social responsibility, and political beliefs. Others have shown that donors must be asked to contribute (Hodgkinson and Weitzman 1996).

25. Alternative to the private and public motives for giving is codependent philanthropy. Duncan (2002) argues that some donors contribute because they want to make a difference. The interesting consequence of this motive is that donors are worse off when contributions of others increase ("an impact philanthropist cannot enjoy saving children if other philanthropists save them first" [p. 2.]). Another interesting implication of Duncan's model is that increased government contributions to a nonprofit may increase the individual's contribution.

26. See https://www.unicefusa.org/site/apps/ka/ct/contactus.asp?c=duLRI8O0H&b=36041 and http://www.doctorswithoutborders.org/donate/what.cfm.

27. There are substantial variations in how organizations determine administration and fundraising costs. The Urban Institute and the Center of Philanthropy have conducted research on this topic—see http://nccsdataweb.urban.org/FAQ/index.php?category=40.

28. Note that while economists generally work under the assumption that individuals make choices to maximize their well-being, this does not contradict the possibility that an individual's well-being may be a function of that of others. See, for example, Arrow (1974), who states that the welfare of each individual depends both on his own satisfaction and on the satisfactions obtained by others. Similarly, Becker (1974:1083) states that "charitable behavior can be motivated by a desire to improve the general well-being of recipients."

29. Nonexclusive implies that no one can be excluded from consuming the good, and being nonrival means that the consumption of one individual does not affect the consumption possibilities of any other potential consumers.

30. Samuelson (1954) examines a public goods environment and argues that free-riding will result in an inefficiently low provision of the public goods. Donors who are concerned for the nonprofit's output are often described as being altruistic; however, as pointed out by Rose-Ackerman (1996) it is misleading to refer to the public-motivated donors as being altruistic as such donors generally will be free-riding.

31. A similar argument is made by Margolis (1982).

32. This prediction relies on the assumption that the individual's benefit from the nonprofit's output depends only on the size of this output and not on the size of the population.

33. While gifts received from nonprofits are not tax deductible they may nonetheless be motives for contributing.

34. Consistently, Ostrower (1997) finds that philanthropy is what defines the boundaries of elite life.

35. Rose-Ackerman (1996:714) comments that "one can obtain prestige from making a gift only if others view one's actions as worthy. If the narrow private benefits of gift giving are too obvious and large, gift givers will not be praised for their self-sacrifice." Frank (2004) suggests that nonprofits want to appear charitable not only to attract donors who care about the nonprofit's output but also to attract those who want the prestige associated with giving to a charitable organization.

36. As the flip side of Harbaugh's argument, Long (1976) argues that publishing names and contributions in alumni magazines imposes social pressure on the contributor, and hence donations are made to relieve social pressure.

37. Interestingly, Arrow (1974) argues that this motivation is necessary since otherwise a purely altruistic individual would prefer that the action be taken by someone else, while an individual that is motivated by both might prefer to give.

38. Exceptions are Holländer (1990), who examines an environment where social approval is a function of the donations made by others. We will examine his and related models in the last section of the paper. A different approach is taken by Duncan (2002), who develops a model of codependent altruism in which a donor derives a private benefit from his or her donation if it makes a difference. In such a model donors prefer that others not contribute to their charity.

39. The model is frequently referred to as an impure altruism model.

40. Steinberg (1987) argues that the response can be more extreme. In particular, the individual's contribution may decrease more than the increase in contributions by others (super crowd-out), or it may increase (crowd-in).

41. Ribar and Wilhelm (2002) show that incomplete levels of crowd-out are possible—however, only as a knife-edge case.

42. Subsequent research has followed a similar approach and examined private and public donations on an organization-by-organization basis.

43. Controlling for quantity of public radio consumed (directly and through instruments) and trying three alternatives to deal with the nonnormality of the censored errors, they conclude that a single household's giving would be between fifteen and nineteen cents lower if government expenditures increased by $10,000. Based on a comparison of crowd-out and income effects they reject the null hypothesis that altruism is pure.

44. A few studies, however, have not found any degree of crowd-out. Posnett and Sandler (1989) examine donations to U.K. charities in 1985 and find that government grants to nonprofits increase rather than decrease individual donations to the charity. Thus increased government donations augment the charities' ability to attract private donations. Similarly, Khanna, Posnett, and Sandler (1995) examine a panel of 159 U.K. charities and find that government grants encourage rather than decrease private giving. Using panel data on U.S. charities Payne (1998) reaches the opposite conclusion, however, using panel data from U.S. universities. Payne (2001) does find evidence of crowd-in. See Steinberg (2003) for a summary of recent crowd-out studies.

45. Duncan (1999) cannot reject that there is complete crowd-out when including the joint effect on contributions of time and money.

46. Alston and Nowell (1996) are among the few who have tried to extend an experimental study to a field experiment.

47. This game has been well studied by experimental economists, political scientists, psychologists, and sociologists. The results generally show that while some participants choose to give nothing, others choose to give a lot. On average, individual contributions typically lie between 40 and 60 percent of the amount of money participants are given. By varying the parameters of the environment, economists have shown that the amount contributed responds in the manner one would expect. Contributions tend to decrease with repetition, increase with face-to-face interaction, and increase when the marginal return from giving increases. See Ledyard (1995) for an excellent review of experiments on public goods.

48. Chan et al. (2002) replicate Andreoni's results and show that

crowd-out increases as the involuntary transfer increases. See also Gronberg, Luccasen, and Van Huyck (2003).

49. Bolton and Katok make the point that Andreoni's crowd-out analysis relies on the assumption that individuals care only about their own payoff. If instead participants are altruistic and also derive utility from increasing the payoffs of others then there may be multiple allocations that are equilibria of the game, and as a result many different contribution levels may be consistent with complete crowd-out.

50. Conversations with the authors revealed a small error in the original article where the stated degree of crowd-out was 73.7 percent. Average giving in \$18/\$2 was \$3.48; taking account of those who contributed less than \$3, this generates the complete crowd-out prediction that giving should be \$1.83 in \$15/\$5. However, average giving in \$15/\$5 was \$2.49. Thus crowd-out is (3.48 − 2.49)/(3.48 − 1.83) = 60 percent.

51. For example, a participant who is solely concerned about his own payoff will choose to free-ride and not to contribute to the public good if her private return exceeds that of the public good. Palfrey and Prisbrey argue that the utility of a publicly motivated or altruistic donor will be increasing in his or her own payoff as well as that of others, whereas the privately motivated donor's benefit from giving will be independent of how the donation affects the group payoff.

52. Sefton and Steinberg (1996) and Andreoni (1995) find less evidence of confusion. In contrast to Palfrey and Prisbrey (1996) they do not try to determine whether individuals are motivated by private or public motives.

53. There are several differences relative to the Palfrey and Prisbrey studies. First, the participants are fully informed of the return that other participants in their group are facing, second, to avoid any repeated game effects they examine only one-shot interaction, and third, they allow the return from the public good to vary for the donor and the other participants in the group. This latter addition helps identify whether donations might be altruistically motivated. In the Palfrey and Prisbrey experiment a change in the return from the public good causes two simultaneous changes. First, it increases the benefit of the contribution received by others, and second, it decreases the individual's cost of making the contribution. By holding the donor's return of the public good constant and increasing that of the other donors, it is possible to determine whether altruism may be the motivation for giving.

54. For example, Goeree et al. (2002) found that donations increase when the group size increases. The reason is that as the group size increases more people benefit from provision of the public good. If individuals take into account the benefit that other donors get from the public good then the limiting arguments of Andreoni (1989) and Ribar and Wilhelm (2000) are not correct, as they rely on the assumption that the public benefit depends only on the dollars contributed and thus are independent of the population size. This raises two important questions for future research. First, it may be of interest to examine an experimental environment that better approximates the classical definition of the public benefit. This could potentially be done in a modified dictator game where the number of potential dictators varies. Second, it is important to determine what donors consider to be the public benefit of their contribution. If donors care about both the effect that their donation has on total output as well as the effect that it has on other donors then the classical crowd-out analysis is misleading and must be modified.

55. See, e.g., Panas (1984), Prince and File (1994).

56. Norms may be modeled either as determining individual preferences (e.g., Fehr and Schmidt 1999; Bolton and Ockenfels 2000), or as a constraint on the objective along the lines of a budget constraint (e.g., Sugden 1984).

57. Arrow's (1974) interpretation of the Kantian categorical imperative is closer to one of serial reciprocity or social exchange. He suggests that "perhaps one gives good things in exchange for a generalized obligation on the part of fellow men to help in other circumstances if needed." See also Bilodeau and Gravelle (2004).

58. For a substantial review on reciprocity see Moody (1994).

59. Sugden (1984) uses the phrase *effort level* rather than *contribution.* He refers to effort as measuring labor time, absolute monetary contribution, or contribution as percentage of income.

60. This prediction is also consistent with Schervish and Haven's (1997) finding that communities of participation induce charitable giving.

61. It is not clear that the positive coefficient should be interpreted as interdependent preferences. As argued by Andreoni and Scholz (1998), "our estimation method could also be interpreted as a very complex fixed-effects model, hence it is possible that individual heterogeneity could be mistakenly attributed to interdependent preferences."

62. Holländer argues that individuals obtain approval only from their reference group, meaning friends, kin, acquaintances, neighbors, etc. While his model predicts a positive correlation between individual gifts, it also predicts that government contribution reduces the approval from giving and hence increases in government giving may result in individual gifts being crowded out.

63. Consider, for example, the case where everyone contributes, say, \$100 to a certain charity in every period, as long as everyone else contributed \$100 in the last period. If someone fails to make a contribution in one period, then the result is that no one will contribute in subsequent periods.

64. See Fudenberg and Tirole (1992) for a careful discussion of repeated games and the folk theorem.

65. While the dynamic game may result in equilibria that complete the project there will also be equilibria that fail to do so. Thus the set of equilibria for the dynamic game is larger than that of the static game. Duffy, Ochs, and Vesterlund (2003) compare contributions in the static and dynamic games to see if this expanded set of equilibria changes behavior. As predicted they find that contributions are larger in the dynamic than in the static game. However, in contrast to the theory by Marx and Matthews they show that dynamic play increases contributions even when there is no discrete increase in payoffs upon completion of the project.

66. Edles (1993) recommends that fundraisers inform future donors of the number of donors and the total amount that they have contributed.

67. See Vesterlund (2003).

68. Andreoni (1988, 1990), Harbaugh (1998b), Glazer and Konrad (1996), and Olson (1965).

69. *New York Times,* March 30, 2002, p. A13.

70. *New York Times,* February 2, 1997, p. 10.

71. Bagnoli and Lipman (1989) propose an alternative method of securing the positive provision outcome. If the fundraiser offers to refund donations short of the threshold then the positive provision outcome is always reached. See also Morelli and Vesterlund (2000) for a model where the fundraiser strategically chooses the threshold.

72. List and Lucking-Reiley (2002) find that increasing the initial contribution from 10 percent to 67 percent of the campaign goal produces nearly a sixfold increase in subsequent contributions. While the objective for each solicitation was to provide funds for a computer, the letter made clear that insufficient or excessive funds would be put to alternative use within the organization. Thus provision was increasing with contributions. Consistent with the continuous production technology is the fact that their results are the same when contributions are refunded when they are short of the goal (see Bagnoli and Lipman 1989; Pecorino and Temimi 2001). Interestingly, a recent follow-up experiment by List and Rondeau (2003) does not find a strong effect of announcement. One explanation for the differing results may be that in the lab there is no uncertainty about the charity, hence announcements do not serve as a signal of high quality. Another explanation may be that it is easier for donors to coordinate on a positive provision outcome in the lab than it is in the real world. Shang and Croson (2003) examine the effect of informing donors to a public

radio station of the contributions made by others. They find that contributions increase with the size of the previously announced contributions.

73. Considering that in 2005 there were more than 600,000 charities and another 30,000 join their ranks every year, it seems plausible that contributors do not have perfect information about the quality of the organizations. While contributors may be informed about the quality of some organizations, charities continually introduce "new products" and it may be difficult prior to the provision of a specific good to evaluate how useful that good will be.

74. Government grants and contracts may also provide signals of a nonprofit's quality (see Rose-Ackerman 1981; Payne 2001).

75. It is not an assumption of the model that only the first mover can purchase information. Rather, all donors are free to purchase information, but the followers choose not to because they realize that the first contribution will reveal this information to them free of charge. The result easily extends to a case where smaller donors do not have the option of purchasing the information.

76. See also Komai (2004).

77. In sequential games it has frequently been shown that people tend to be kind to those who have been kind to them and unkind to those who have been unkind. See Fehr and Gächter (2000) for references and an overview of the importance of reciprocity.

78. For example, it may be argued that status plays a role when Bill Blass, Dorothy and Lewis B. Cullman, and Sandra and Fred Rose all follow Brook Astor's contribution to the New York Library (*New York Times,* March 30, 2002, p. A13). See Ball et al. (2001) for some interesting status experiments.

79. For a match to have the intended positive effect, donors must believe that the match is paid only when the requested donation is made. If the donor commits to matching up to a certain point and this contribution is made independent of whether the challenge is reached, then the match is equivalent to a standard donation, and should be viewed as such.

80. For these results to hold it is necessary that the prize be fixed and the probability of winning increases with the contribution. For example, Morgan (2000) shows that it does not hold when the prize depends on the number of tickets purchased, and Duncan (2002) shows that it does not hold if the probability is fixed, such as with a door prize.

81. Duncan shows that Morgan's result depends on the assumption that the benefit of the nonprofit's output is independent of the consumption of all other goods.

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